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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/681,398	03/29/2001	Steve C. Wang	200-1381	3286

28804 7590 08/16/2004

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EXAMINER

BRODA, SAMUEL

ART UNIT PAPER NUMBER

2123

DATE MAILED: 08/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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**Office Action Summary**

Application No.

09/681,398

Applicant(s)

WANG ET AL.

Examiner

Samuel Broda

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☒ Claim(s) 1-19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4/2001.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: Request for Information.

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### **DETAILED ACTION**

1. Claims 1-19 have been examined.

#### ***Drawings***

2. Applicants' formal drawings have been reviewed and approved by the PTO Draftsperson.

#### ***Claim Objections***

3. The following is a partial quotation of 37 CFR § 1.75:

...  
(i) Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation.

3.1 Claims 1-19 are objected to under 37 CFR § 1.75(i) because each element of each claim is not separated by a line indentation.

#### ***Claim Rejections - 35 U.S.C. § 112, Second Paragraph***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4.1 Claims 12-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

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4.2 Regarding independent claim 12, the claim preamble is directed to a “method for analyzing a design” but the method steps appear directed to mathematical operations for approximating a performance surface. Because none of the method steps appear connected to analyzing a design, the scope of the claim is unclear.

4.3 Claims 13-19 are dependent on claim 12 and rejected using the same analysis.

***Claim Rejections - 35 U.S.C. § 101***

5. The following is a quotation of 35 U.S.C. 101:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5.1 Method claims 7-19 are rejected for reciting a process comprising an abstract idea.

5.2 Regarding independent claim 7, this claim is directed to “a method for analyzing a computer generated model,” and the steps recited in claim 7 describe the abstract idea of performing a mathematical analysis on a variable. Regarding independent claim 12, this claim is directed to “a method for analyzing a design,” and the steps recited in claim 12 describe the abstract idea of performing mathematical operations on a performance surface.

The steps recited in these claims do not: (1) recite data gathering limitations or post-mathematical operations that might independently limit the claims beyond the performance of a

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mathematical operation; or (2) limit the use of the output to a practical application providing a useful, concrete, and tangible result.

5.3 Dependent claims 8-11 and 13-19 are rejected using the same analysis.

***Claim Rejections - 35 U.S.C. § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the date of invention thereof by the applicant for patent.

6.1 Claims 1-11 are rejected under 35 U.S.C. 102(a) as being anticipated by Ye et al, “Algorithmic Construction of Optimal Symmetric Latin Hypercube Design,” Journal of Statistical Planning and Inference, Vol. 90 No. 1, pp. 145-159 (July 2000).

6.2 Regarding claim 7, Ye et al teaches a method for analyzing a computer generated model, including:

receiving the computer generated model [model of diameter of a cyclone, page 22 equation (3);

creating at least one variable [seven variables used to predict the diameter of the cyclone; see page 22]; and

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probabilistically analyzing the computer generated model by the use of the at least one variable [range of inputs used in modified Latin Hypercube Designs and mean squared error for each design, Table 10 and corresponding text at pages 22-25].

**6.3** Regarding claims 8-9, the method of Ye et al samples a performance surface corresponding to 400 randomly selected sites and a calculated mean squared error to analyze the design, with the determination of the sampled performance space adequately approximated by the lowest mean squared error. See Table 10 and corresponding text.

**6.4** Regarding claims 10-11, the method of Ye et al samples a performance surface corresponding to mean squared error to analyze the design, with the determination of the sampled performance space adequately approximated by the lowest mean squared error. See Table 10 and corresponding text.

Additionally, Ye et al teaches establishing a prediction model for both control and noise factors, and then given the distribution of noise variables, estimating the variation of the response for each combination of control variables using the model. See page 25 paragraph 1.

**6.5** Regarding system claims 1-4, these claims correspond to method claims 7-9 and are anticipated using the same analysis.

**6.6** Regarding system claims 5-6, these claims correspond to method claims 10-11 and are anticipated using the same analysis.

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### *Conclusion*

7. The prior art made of record and not relied upon is considered pertinent to Applicants' disclosure. Reference to Ali et al, U. S. Patent 6,405,344 issued 11 June 2002 and filed 14 May 1999, is cited as teaching a method for performing design trade-off based on a total score.

Reference to Ostrowski et al, U. S. Patent 6,377,908 issued 23 April 2002 and filed 14 May 1999, is cited as teaching a method for optimizing transfer function outputs in which inputs are perturbed.

Reference to Bailey et al, "Using Response Surfaces to Improve the Search for Satisfactory Behavior in System Dynamics Models," System Dynamics Review, Vol. 16 No. 2, pp. 75-90 (2000), is cited as teaching an augmented robust concept exploration method.

Reference to Hamada, "Using Statistically Designed Experiments to Improve Reliability and to Achieve Robust Reliability," IEEE Transactions on Reliability, Vol. 44 No. 2, pp. 206-215 (June 1995), is cited as teaching Taguchi experimental designs.

Reference to Boning et al, "DOE/Opt: A System for Design of Experiments, Response Surface Modeling, and Optimization Using Process and Device Simulation," IEEE Transactions on Semiconductor Manufacturing, Vol. 7 No. 2, pp. 233-244 (May 1994), is cited as teaching the DOE/Opt system that integrates design of experiments, response surface model generation, and nonlinear constrained optimization.

8. This Office action has an attached requirement for information under 37 CFR 1.105. A complete reply to this Office action must include a complete reply to the attached requirement




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for information. The time period for reply to the attached requirement coincides with the time period for reply to this Office action.

9. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Samuel Broda, whose telephone number is (703) 305-1026. The Examiner can normally be reached on Mondays through Fridays from 8:00 AM – 4:30 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Kevin Teska, can be reached at (703) 305-9704. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the group receptionist, whose telephone number is (703) 305-3900.

  
**SAMUEL BRODA, ESQ.**  
**PRIMARY EXAMINER**

**REQUIREMENT FOR INFORMATION UNDER 37 C.F.R. § 1.105**

**ATTACHMENT TO PAPER NO. 200408**


1. Applicants and the assignee of this application are required under 37 CFR 1.105 to provide the following information that the examiner has determined is reasonably necessary to the examination of this application.
2. In response to this requirement, please provide copies of each publication (published prior to the filing date) which any of the Applicants authored or co-authored and which describe the disclosed subject matter of:
  - (1) Latin hypercube designs; or
  - (2) entropy analysis.
3. In responding to those requirements that require copies of documents, where the document is a bound text or a single article over 50 pages, the requirement may be met by providing copies of those pages that provide the particular subject matter indicated in the requirement, or where such subject matter is not indicated, the subject matter found in Applicants' disclosure.
4. The fee and certification requirements of 37 C.F.R. § 1.97 are waived for those documents submitted in reply to this requirement. This waiver extends only to those documents within the scope of this requirement under 37 C.F.R. § 1.105 that are included in the Applicants' first complete communication responding to this requirement. Any supplemental replies

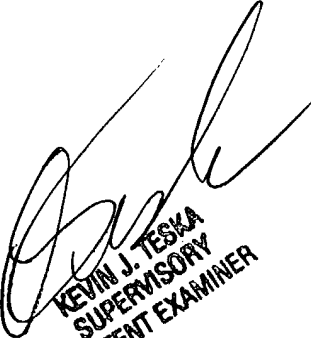
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subsequent to the first communication responding to this requirement and any information disclosures beyond the scope of this requirement under 37 C.F.R. § 1.105 are subject to the fee and certification requirements of 37 C.F.R. § 1.97.

5. The applicant is reminded that the reply to this requirement must be made with candor and good faith under 37 CFR 1.56. Where the applicant does not have or cannot readily obtain an item of required information, a statement that the item is unknown or cannot be readily obtained will be accepted as a complete response to the requirement for that item.

6. This requirement is an attachment of the enclosed Office action. A complete response to the enclosed Office action must include a complete response to this requirement. The time period for reply to this requirement coincides with the time period for reply to the enclosed Office action, which is THREE months.

  
SAMUEL BRODA, ESQ.  
PRIMARY EXAMINER

  
KEVIN J. TESKA  
SUPERVISORY  
PATENT EXAMINER